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UNIVERSITY OF CALIFORNIA.

REPORT

ON

PHYSICAL TRAINING.

SUBMITTED TO THE BOARD OF REGENTS,

JUNE 26, 1888.

By GEORGE F. E. HARRISON,

*First Lieutenant Second U. S. Artillery; Professor of Military Science and Tactics,  
University of California.*

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STATE OFFICE, : : : J. D. YOUNG, SUPT. STATE PRINTING.  
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## REPORT ON PHYSICAL TRAINING.

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UNIVERSITY OF CALIFORNIA,  
BERKELEY, CAL., June 15, 1888.

*To the Board of Regents, University of California:*

GENTLEMEN: In accordance with the resolution adopted at a meeting of the Board of Regents, held May 8, 1888, and which read: "*Resolved*, that Lieutenant Harrison, Professor of Military Science and Tactics, is hereby invited to report to the Board the result of his observations on methods of Physical Culture, in its application to students in military and other colleges," I have the honor to submit the following:

Although feeling that this task might have been submitted to much more competent hands, I gladly undertake to comply with the request of the Board, for the following reasons:

*First.*—I am a member of the Standing Committee of the University on Gymnasium.

*Second.*—I was, at the request of the Board of Regents, sent by the General Government, before reporting for duty at the University, to West Point, to investigate the system of gymnastic training in use at the United States Military Academy.

*Third.*—As the head of the Department of Military Science, I am much concerned and interested in what pertains to the physical development of the young men of the University.

*Fourth.*—The great and manifest need to the student body of such course of training.

I am disposed to think that no demonstration is necessary to convince those who have given the subject consideration that a course of physical training is not only of the highest importance, but is an indispensable adjunct to every well regulated modern institution of learning. There is no evading the fact that the strain on the mental fibre of the average student, who makes an honest endeavor to master the advanced and comprehensive curricula of the colleges and universities of the present day, is calculated to undermine the strongest constitution.

The remedy is a simple one, and most easy of application. The University is already possessed of a commodious and well equipped gymnasium. Some new apparatus is needed, and some alterations are necessary; these a small outlay would readily provide. Although the gymnasium was built ten years ago, but little good has come of it to the student body as a whole; the reason therefor is simply that the latter have never been taught how to draw good from it. A gymnasium is like any other complicated machine; one must be taught how to use it. It may be asked why does not the military department accomplish all that is necessary to develop bodily health and vigor? The answer is, that the primary object of a course of military instruction at colleges, as conducted under the auspices of the War Department, is not to attain this end. Of course, it should and does accomplish a great deal towards the production of a manly and erect bodily deportment, but it cannot be expected to produce the proper healthful condition of the student class. In the first place, the time allotted to it is not sufficient. In the second place, the Government in giving to colleges throughout the country grants of public lands—the equivalent of munificent money endowments—did not contemplate the creation simply of departments for the physical training of the young men thereof. What the Government had in view was the instruction of the more advanced and intelligent students of the land in a course of military science and tactics, in the hope of thereby creating a spirit of devotion and attachment towards the National Government, together with a general appreciation of and interest in military affairs, particularly as regards the national defense; so that in the day of the nation's need there would be throughout the land a class of men who would not only be imbued with a special attachment, but would bring to her aid intelligent, valuable services. If, while accomplishing this object, the Government can contribute anything towards the making of strong, healthy men, it finds cause for felicitation; but this is not what it has set out primarily to do.

Only two hours a week are given to the military department in which to work out its ends. It must be borne in mind that this time is not given up entirely to field exercises; on the contrary,

a large proportion of it is devoted to recitations, lectures, etc., indoors. Therefore, as a factor in bringing about the proper healthful condition of our students, the military department must not be regarded as effective, or even approximately so.

A glance at the average student of the University is sufficient to proclaim the necessity of reinforcing or recruiting the body to bear the drain that is made upon it. The University must see to it that the future is not storing up against her the dreadful accusation that, in her eagerness to cultivate the mind, she has made a wreck of the bodies of the young men of California. Her responsibility in the premises is most grave. This problem has been given in recent years serious consideration by all the foremost colleges in the land. We have but to investigate what has been done by them to insure ourselves against mistakes. In a review of the college world, our attention will naturally first be drawn to Amherst, of which President Eliot, of Harvard, says: "It is to Amherst College that the colleges of the country are indebted for a demonstration of the proper mode of organizing the department of physical training."

For the following information regarding Amherst, I have drawn upon the excellent report of Professor E. M. Hartwell, of Johns Hopkins University to the Bureau of Education.

When the late W. A. Stearns, D.D., was inaugurated as President of Amherst, in 1854, he devoted a considerable portion of his discourse to enforcing the proposition that no course of education was complete that did not devote special attention to securing the normal development and healthy working of the body. In his first report to the Trustees, in 1855, President Stearns said: "No one thing has demanded more my anxious attention than the *health of the students*. The waning of the physical energies in the midway of the college course is almost the rule rather than the exception among us, and cases of complete breaking down are painfully numerous."

A year later he tells the Trustees that the breaking down of the health of the student is, in his opinion, wholly unnecessary. In his report for 1859 President Stearns again returns to the consideration of the question of students' health, and says:

"Time and experience have convinced me of an imperious demand in circumstances of an academic life for immediate and efficient action on this subject. Many of our students come from farms, mechanic shops, and other active occupations, to the hard study and sedentary habits of college. Physical exercise is neglected, the laws of health are violated, the protests and exhortations of other friends are unheeded. The once active student soon becomes physically indolent, his mental powers become dulled, his movements and appearance indicate physical deterioration. By the time the Junior year is reached many students have broken down in health, and every year some lives are sacrificed. Physical training is not the only means of preventing this result, but it is among the most prominent of them. If it could be regularly conducted, if a moderate amount of physical exercise could be secured as a general thing, to every student daily, I have a deep conviction, founded on close observation and experience, that not only would lives and health be preserved, but animation and cheerfulness and a higher order of efficient study and intellectual life would be secured. It will be for the consideration of this Board whether, for the encouragement of this sort of exercise, the time has not come when efficient measures should be taken for the erection of a gymnasium and the securing of its proper appointments."

These remarks were rendered emphatic by a statement concerning the death of two seniors who had broken down under college life.

The Trustees concluded that the time for erecting a gymnasium had come, and set about raising the money for it. It was unanimously voted by the Trustees to establish a department of physical culture in this college, and that the duties of its professor shall be:

- (1) To take charge of the gymnasium and give instruction to the students in gymnastics.
- (2) To take general oversight of the health of the students, and to give such instruction on the subject as may be deemed expedient, and under the direction of the Faculty, like all other studies.
- (3) To teach elocution so far as it is connected with physical training.
- (4) He shall give lectures from time to time upon hygiene, physical culture, and other topics pertaining to the laws of life and health, including some general knowledge of anatomy and physiology.
- (5) The individual appointed to have charge of this depart-

ment shall be a thoroughly educated physician, and like other teachers and professors shall be a member of the college Faculty. It is distinctly understood that "the health of the students" shall at all times be an object of his special watch, care, and counsel.

At the suggestion of Dr. Nathan Allen, of Lowell, Massachusetts, the well known writer on hygiene and sociology, then, and now, one of the Trustees of the college, it was voted to designate the head of the newly created department as the Professor of Hygiene and Physical Education. Dr. Allen was also mainly responsible for the definition of the duties of the professorship, as embodied in the vote quoted above.

The plan of the President and Faculty, alluded to under the second head of this vote, was as follows:

*First.*—The main object shall not be to secure feats of agility and strength, or even powerful muscles, but to keep in good health the whole body.

*Second.*—That all the students shall be required to attend on its exercises for half an hour, designated for the purpose, at least four days in the week.

*Third.*—The instructor shall assign to each individual such exercises as may be best adapted to him, taking special care to prevent the ambitious from violent action, and all extremes, endeavoring to work the whole body, and not overwork any part of it.

*Fourth.*—That while it may not be expedient to mark the gradation of attainment, as in the intellectual branches, yet regularity, attention, and docility, should be carefully noted, so as to have their proper weight in the deportment column of the student's general position.

*Fifth.*—That some time shall be allowed out of study hours for those volunteer exercises, which different men, according to their tastes, may elect for recreation, and particularly that the bowling-alley be not given up to promiscuous use, but be allotted at regular hours to those who wish to make use of them. All these volunteer exercises, of whatever kind, to be under the supervision of the gymnasium instructor.

*Sixth.*—That the building shall always be closed before dark; that no light shall be used in it, and no smoking, or irregularities of any kind shall be allowed in it.

*Seventh.*—That the instructor ought to be a member of the Faculty, and give into it his marks and occasional accounts, and receive directions as other officers of the college are accustomed to do.

The department has been administered from the first without any material deviation from the plan thus outlined.

The Amherst scheme has been in operation for over twenty-five years, and has proved eminently successful. For twenty years a most elaborate system of anthropometrical measurements and observations has been maintained, and a complete system of statistics kept, which show conclusively the efficiency of the work done.

A system of physical instruction based mainly on the suggestions conveyed in the foregoing resolutions, could not fall far short of the accomplishment of all desired ends for the students of the University of California.

My study of the course of gymnasium instruction as pursued at the Military Academy has strengthened my conviction of the excellence of the Amherst system. In their general features the two are very similar.

At West Point the instruction is confined to the fourth class, who are required to attend the gymnasium six instead of four times a week for thirty-five instead of thirty minutes daily. Of course more time is devoted to fencing, bayonet, and broadsword exercise than would be required at a college or university. Although from two to three hours are devoted daily on an average, the entire year through, to infantry, cavalry, and artillery drills and ceremonies, it was recognized by the authorities that the exercise obtained thereby, excellent as far as it went, was not far-reaching enough in its results; that there were certain parts and muscles of the body that, to be kept in proper working order, required exercise of a different kind. Fencing, bayonet, and broadsword exercises have always been required, but it was not until within the past four years that the necessity was felt of adopting a regular course of gymnastics.

A skilled trainer and gymnast was selected to take charge of the gymnasium and superintend personally all exercises therein. Prior to the introduction of this regular course of gymnasium instruction it had been thought by the War Department and by the authorities of the Military Academy that the varied daily exercises, both on horseback and afoot, incident to a military training, accomplished every desired end as regarded the physical development of the cadets. The results of the past four years' course of gymnastic instruction have been most fertile in lessons.

The benefits obtained therefrom have exceeded the most sanguine expectations. The improvement noticeable in the classes who have been put through the new course, compared with those who did not have the benefits of the same, has caused wide comment, and has given the new department a position of importance second to none of the required courses of the Academy. The erect carriage, grace and ease of bearing, agility in the riding-hall, increased powers of endurance and capacity for work, both mental and physical, have proclaimed in no equivocal terms the excellence of the new departure. There are no "Special Courses" of gymnasium instruction. There is but the one "Regular Course;" this, for the reason that all cadets before admission are required to be perfectly sound physically. Candidates that are unequal to all or any exactions are rejected at the outset.

The most admirable feature of the course, wherein it is in perfect accord with that of Amherst, is the absence of any effort to create *acrobats* or *gymnasts* in the *circus* sense of the word. The work is confined to an honest endeavor to develop bodily health and strength. No tumbling, no showy and lofty feats on flying rings or bars, no exercises that involve overexertion, strains, or risks of any kind. It is a simple, rational, progressive series of exercises, each preparing for and leading into the next in order of succession, so that every muscle and every joint of the body is reached in due order, and acted upon according to its requirements. The West Point gymnasium is not provided with the apparatus known as the Sargent apparatus, and consequently the prescribed course does not include exercise of that kind. It should not, however, be omitted in a course prescribed for an institution such as our University. The physical training of a body of students who are not selected, who are not required, at the outset, to comply with a certain standard, will, of necessity, involve departures from any regular fixed course of instruction that may be adopted. There will be some students who, on account of physical weakness or deformities, will require special treatment. For such students special courses of instruction will be a necessity. It is for such special requirements that the Sargent apparatus was originally devised. Exercises with some of said apparatus can most profitably be introduced into a regular

course for all; on the other hand, its use for students who, because of some physical shortcoming, cannot follow the regular course, will be indispensable. Therefore, no college gymnasium will be properly equipped which is not provided with said apparatus, and no course of instruction entirely practicable which does not provide for its use.

The class undergoing instruction at the Military Academy is for convenience divided into squads of not more than fifteen. The instructor finds that he cannot properly or profitably handle more men at a time. Moreover, an interest is maintained which, with larger bodies, would be dissipated. There are no long waitings for turns which only beget restlessness and impatience. Although more than two men are not allowed to go through any movement or exercise at a time, one has hardly completed one movement before it is time to renew or go through another. In this way, a maximum amount of instruction for the time allowed is given to each individual. No movement, however trivial, is executed except under the eye and direction of the instructor. Thus thoroughness of execution and security against accidents and strains are obtained. Each squad is marched to and from the gymnasium in charge of a leader. Although the men are allowed to stand at ease, no loud talking or frivolous behavior is tolerated. Gymnasium jackets and shoes must be worn at all exercises. The instructor, Herman J. Koehler, thoroughly understands his business, and the success attained is due, in no small measure, to his skilled and careful supervision. The last Board of Visitors made such a flattering report to Congress of the work done in the gymnasium, that Congress, at its last session, appropriated \$35,000 for a new building and apparatus.

The course consists simply of instruction, in order, in the following:

1. Calisthenics.	5. Parallel bars.
2. Indian clubs.	6. Foils.
3. Vaulting horses.	7. Bayonets.
4. Horizontal bar.	8. Broadswords.

I will allude in brief to what is being done in the cause of physical education by some of the foremost colleges of the country.

## PRINCETON.

In 1884, gymnastics were made obligatory for students in the freshman and sophomore classes. Thirty minutes are devoted to them, four times weekly, from the first of November to the first of April.

## CORNELL.

Sargent gymnastics required for all males needing it, in Director's opinion, five times a week for one hour. Light gymnastics are required five times a week for one hour for all unexcused female students. Although there is a military department in charge of an officer of the army, there is a separate and independent department of physical culture. The latter is in charge of a physician (Dr. E. Hitchcock, Jr.) who is officially styled Acting Professor of Physical Culture and Director of Gymnasium. He is aided by a skilled assistant, who superintends the class exercises and conducts all practice with the apparatus.

## DARTMOUTH.

Gymnastics are required of the Freshman and Sophomore classes. The first year, students are required to attend thirty minutes, four times a week, for eleven weeks; in the second year, twice a week for eleven weeks.

## HARVARD.

At Harvard and Yale it is needless to state that the subject of physical training has ever received the widest attention and encouragement.

At Harvard University, in 1879, was organized a new department of physical training in connection with the Hemenway Gymnasium, in the construction of which \$110,000 were expended. Dr. D. A. Sargent, a graduate of Bowdoin College in 1875, and of the Yale Medical School in 1878, was placed at the head of the new department, with title of Assistant Professor of Physical Training and Director of the Hemenway Gymnasium. Dr. Sargent is the inventor of the Sargent system, a system pronounced

by those versed in such matters to be the most comprehensive and scientific of any ever presented to the college world. Under his intelligent guidance a great work has been accomplished. President Eliot says:

"It is agreed on all hands that the increased attention given to physical exercise and athletic sports within the past twenty-five years has been, on the whole, of great advantage to the University; that the average physique of the mass of students has been sensibly improved, the discipline of the college been made easier and more effective, the work of many zealous students been done with greater safety, and the ideal student been transformed from a stooping, weak, and sickly youth into one well-formed, robust, and healthy."

#### YALE.

Yale, strange to say, has given no formal recognition to the subject of the physical education of her students. She has left the matter entirely in the hands of the latter. Perhaps the Faculty recognize the fact that the natural spirit of jealousy and rivalry towards Harvard is sufficient to accomplish all desired ends. That the result would seem to justify the theory is evidenced by the fact that within the last six years there were purchased and converted into an athletic field twenty-nine acres of land at a cost to the students and their friends of over \$53,000.

Instances innumerable of colleges and universities could be quoted to show how widespread is the interest manifested in recent years in this all-important subject.

Suffice it to say that in the past eight years more money has been expended in gymnasias and apparatus in the United States than in all preceding years of our history taken together.

I therefore make bold to suggest the following:

- (1) That a new department of the University be organized, to be known at the Department of Physical Culture.
- (2) That there be selected to take charge of this department a thoroughly educated physician, who, like the head of any other department, shall be a member of the University Faculty.
- (3) That his duties shall be, (1), to take charge of the gymnasium and superintend the instruction of the students in gymnasitics; (2), to give lectures from time to time upon hygiene and

other subjects pertaining to the laws of life and health, together with a short course of instruction upon anatomy and physiology; (3), to give constant care and attention to the health and physical well being of the student body.

(4) That a trained athlete and gymnast be engaged, who shall be an assistant to the Professor of Physical Culture, and shall be styled Instructor of Gymnastics. He shall personally conduct all class exercises and supervise all practice with the apparatus.

(5) That it is of the utmost importance that great care be given to the selection of the latter, in order that a thoroughly competent *instructor* may be secured. His salary should be a respectable one, say \$125 a month, and he should be provided with a residence, free of rent, in the near vicinity of the gymnasium.

(6) The instructor of gymnastics shall, in addition to his duties in the gymnasium, perform the duties of *coach* to all athletic teams of the University.

(7) That the course of instruction shall be compulsory for the Freshman Class during both terms of the Freshman year excepting the months of October and June, and shall consist of thirty minutes exercise daily, five times a week.

(8) That the Freshman Class, for purposes of instruction, shall be divided into squads of about fifteen, each squad to report at the gymnasium at such designated times during the day as shall be found practicable and convenient.

(9) The course of instruction, subject to such modifications as the Professor of Physical Culture and the Instructor of Gymnastics, under the direction of the Faculty, may deem expedient, shall be conducted as follows:

Every beginner shall be subjected to the series of measurements and tests required by the Sargent system; blank forms for the purpose shall be kept on hand, and filled out in duplicate—one to be handed to the student, and the other to be placed in a book kept for the purpose. The measurements and tests shall be repeated at the end of the first and second term of the Freshman year. These measurements and tests shall always be made under the personal supervision of the head of the department. After comparing the results obtained by these measurements and tests, with the standard for the average healthy person of the age given, the

examiner makes his prescription for each individual as regards diet, exercise, sleep, air, bathing, clothing, etc. These prescriptions are entered on a card or handbook, and given the student. On each book and card shall be stated, likewise, "Regular Course," or "Special Course." "Special Courses" are those given to students for whom, on account of specific defects or departure from the normal standard, special exercises are deemed advisable. The "Special Course" in each case shall be specified. Each student, on entering the gymnasium, shall hand his card to the instructor, who shall be guided accordingly.

The "Regular Course" shall consist of exercises as follows:

Two weeks.—"Setting up," as prescribed in what is specifically known as "Exercises" in Upton's Tactics.

Three weeks.—Calisthenics.

Three weeks.—Sargent apparatus.

Three weeks.—Indian clubs.

Three weeks.—Vaulting horses.

Three weeks.—Horizontal bar.

Three weeks.—Parallel bars.

Four weeks.—Fencing.

Regular attendance, orderly behavior, and proper attention to duty, shall at all times be enforced.

Gymnasium jackets and shoes—of a pattern to be designated—shall be worn at all exercises.

(10) That some hour or hours be set aside for daily volunteer exercises for all classes, such volunteer exercises, of whatever kind, to be under the supervision of the gymnasium instructor.

Such is briefly the scheme that I respectfully offer to your consideration. There is nothing original or experimental about it; it has been tried and tested, and has exceeded in magnificent results the most sanguine expectations.

We have but to look about us to become alive to the necessity of recruiting the bodies of our young men to enable them to meet the great demands made upon them. In the natural course of my duties as head of the military department, I have had occasion to closely examine the physique of the student body. I do not hesitate to say that it is considerably below what I regard as

the proper standard. Although there are many specimens of superb bodily development, they constitute a marked minority. An observer cannot but be struck by the goodly number of narrow-chested, round-shouldered, pallid-looking students that are to be encountered in a glance at the University Battalion. Many of the students, sensible of the necessity of bodily exercise, make free use of the gymnasium or indulge voluntarily in athletic sports on the college campus. These latter are almost invariably men of vigorous bodily constitution, who take to exercise because it is pleasing to them. They avoid, because of their vigor, an inactive sedentary life. Those of the students who *need* building up, who *require* reënforcing, are the very ones who naturally shun the means to such end. Those who naturally incline to sedentary habits are, as a rule, the very ones who should be made to avoid them. In a word, the matter of exercise is one that above all others requires to be *regulated*. It cannot be left to the discretion of the student body.

It may be urged that I am giving too much importance to the department; that I am organizing it on too extensive a basis when I dignify it with a professorship. In *importance*, the health of the student body yields to no consideration whatever; no department of the University should take precedence over it. If, by attaching to it a professorship, I add dignity to the cause of bodily vigor, my scheme is worthy of the highest commendation. It may be advanced, that the work to be done would not give sufficient occupation to a physician, and would not, therefore, warrant his employment. This objection can alone be based on a failure to appreciate the magnitude of the work to be done. In the first place, a course of physical training, of its very nature, demands that it be directed by a professional physician. A thorough knowledge of the structure and wants of the human body is indispensable to its intelligent administration.

In the second place, there is presented a field of labor that for earnest endeavor has almost no limits. Aside from the technical work of his department proper, his services may be made invaluable as medical adviser. To appreciate how indispensable to the wants of the University are the services of a duly installed physician, we have but to contemplate the status of the average student

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after attaching himself to the University for a regular course of four years' work. Students come from every section of the State, and some from sections without the limits of the State. Their new career as students is for most of them a radical change from that of their home life. They are thrown on their own resources. They take up their abodes where best suits them at or in the vicinity of Berkeley. They are removed from all their accustomed restraints. The watchful eye of anxious parents is no longer upon them to guide and direct them. They are free to come, go, and do as they please. Is it to be wondered at if their new life is marked by many irregularities of food, dress, hours, habits, etc., which could not obtain in their condition of life before coming to the University? Is it not natural that the carelessness incidental to youth at this age should superinduce many ills and ailments which, if not attended to, would, in many cases, lead to real sickness and disease? Many students, when taken sick, are, from pecuniary and other considerations, restrained from placing themselves under the care of a physician. Is not this the period, of all periods in their life, when mature counsel, kind sympathy, and professional advice would be a boon and a blessing?

If the records of the University could show the real cause of the breaking down and retiring of so many students before the completion of their course, it would be discovered that the greater number failed not because of *mental* but because of *physical* deficiency. This is not a careless statement, but one that I feel assured would be literally borne out by the facts if they could be arrived at.

It needs no further demonstration to show how fruitful of happy results would be the work of a skilled physician who as a member of the Faculty and head of a department would be personally known to every student, and who would be found daily in his office to give advice and assistance to whoever might need it.

I anticipate the objection that the time of students is already wholly occupied with study and recitations, and that it is impracticable to make room for gymnasium work. All the more reason why room *must* be made. If such heavy mental strain is placed on the student it is high time that such strain be relieved and

something in the shape of an offset be interpolated. But half an hour a day is asked for, and it can be demonstrated beyond cavil or doubt that the time thus taken and devoted to systematic physical exercise will be more than doubly or trebly returned in increased capacity for work.

I respectfully but earnestly request the gentlemen of the Board of Regents to give serious consideration to this all-important subject.

As one who is soon to sever his connection with the University, I have no thought other than the welfare of the institution I have had the honor and pleasure of serving for the past two years.

The people of California have a right to expect much of their University. They have bountifully supplied the wherewithal to make it the peer of any college of learning in the country. The University will be true to its trust. All it needs to reach the goal is the impulse of a warm place in the hearts of the people. Let the good mothers and fathers of California know that their sons are being made strong and healthy men as well as wise. Let them be assured that they are being equipped physically as well as intellectually for the battle of life, and the mission of the University will soon be accomplished for all time.

Very respectfully, your obedient servant,

GEO. F. E. HARRISON,  
First Lieutenant Second U. S. Artillery,  
Professor of Military Science, University of California.









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